

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A gene detecting chip ~~for single base substitution SNP and point mutation of genes~~, comprising:

a body having a depression;

an upper cover to be fixed to said body from above said depression;

a ~~closed~~ an enclosed internal space part, formed by said depression in said body as a result of said upper cover being fixed to said body, capable of being filled with and being emptied of ~~DNA~~ gene samples;

a plurality of measuring electrodes ~~positioned in~~ formed at the bottom of said space part;
and

a counter common electrode ~~positioned in said space part and not in contact with any of said plurality of measuring electrodes~~ which is a counter electrode to said measuring electrodes arranged in the space part;

wherein ~~one of a plurality of PCR products or oligonucleotides is immobilized on one of said plurality of~~ , when a voltage is applied between said common electrode and said measuring electrodes, electric current between said common electrode and said measuring electrodes can be detected; and

~~wherein voltage applied between said counter electrode and said plurality of measuring electrodes generates electric current between said counter electrode and said plurality of measuring electrodes.~~

2. (Currently Amended) A The gene detecting chip ~~for single base substitution SNP and point mutation of genes~~, comprising:

~~a closed internal space part capable of being filled with and emptied of DNA samples;~~

~~a plurality of measuring electrodes positioned in said space part; and~~

~~a counter electrode positioned in said space part and not in contact with any of said plurality of measuring electrodes;~~

~~wherein each of a separate one of a plurality of PCR products or oligonucleotides is immobilized on a separate respective one of said plurality of measuring electrodes; and~~

~~wherein voltage applied between said counter electrode and said plurality of measuring electrodes generates electric current between said counter electrode and said plurality of measuring electrodes according to claim 1, wherein two opposing surfaces of each of said body and said upper cover each have an injection hole extending to the depression of the body.~~

3. (Currently amended) The gene detecting chip ~~of~~ according to claim 1, wherein said ~~measuring electrodes comprise gold~~ upper cover is transparent.

4. (Currently amended) The gene detecting chip ~~of~~ according to claim 21, wherein said measuring electrodes ~~comprise gold~~ form an electrode array.

5. (Currently amended) The gene detecting chip ~~of~~ according to claim 1, wherein ~~each of said plurality of measuring electrodes is operatively connected to a respective electrically conductive terminal~~ common electrode is arranged so as not to contact the measuring electrodes.

6. (Currently Amended) The gene detecting chip ~~of claim 2~~ according to claim 1, wherein ~~each of said plurality of measuring electrodes is operatively connected to a respective electrically conductive terminal~~ PCR products or oligonucleotides consisting of different genetic sequences are immobilized on each of said measuring electrodes.

7. (Currently amended) The gene detecting chip ~~of~~ according to claim 1, ~~configured for removable insertion into a measuring apparatus and for disconnectable electrical connection to said measuring apparatus~~

wherein each of said plurality of measuring electrodes is combined with each of a plurality of wirings; and

wherein said wirings are respectively connected to said measuring electrodes on a one to one basis, or form a matrix structure as a grid wiring consisting of a plurality of conductors fixed in rows and lines to connect each of said measuring electrodes arranged in the array with their respective nearest conductor of the conductors fixed in rows and lines.

8. (Currently amended) The gene detecting chip ~~of according to claim 1 or claim 2,~~
~~configured for removable insertion into a measuring apparatus and for disconnectable electrical~~
~~connection~~ wherein said detecting chip is configured to be inserted into and removed from a
measuring apparatus capable of detecting an electric current, and is configured to be electrically
connected to said measuring apparatus.

9. (Currently amended) The A gene detecting chip ~~of claim 1 incorporated in a card~~
according to any one of claims 1 to 3, wherein said detecting chip forms part of a card or a
cassette.

10. (Currently amended) The A gene detecting chip ~~of claim 2 incorporated in a card~~
apparatus, comprising:
a gene detecting chip according to claim 1; and
a measuring apparatus capable of detecting and analyzing genes;
wherein said detecting chip is configured to be inserted into and removed from said
measuring apparatus, and is configured to be electrically connected to said measuring apparatus.

11. (Currently amended) The A gene detecting chip ~~of claim 1 incorporated in a cassette~~
apparatus according to claim 10, wherein the temperature of said detecting chip is changed by
using peltier devices to control temperature conditions for hybridization.

12. (Currently amended) ~~The detecting chip of claim 2 incorporated in a cassette~~ A method
for detecting single nucleotide polymorphisms and point mutations of DNA samples, said
method comprising:
filling said DNA samples or gene-amplified DNA from said DNA samples into the space
part of a gene detecting chip according to claim 1;
filling an electrolyte including electrochemically active molecules into said space part,
and controlling the temperature to bind the electrochemically active molecules with said double
strand; and

detecting single nucleotide polymorphisms and point mutations of said DNA samples or gene-amplified DNA from said DNA samples by detecting a flowing current value through the application of the voltage between said common electrode and said measuring electrodes of the gene detecting chip.

Claims 13-36. (Cancelled).